

# PATENT SPECIFICATION

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DRAWINGS ATTACHED



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## (54) PACKAGING OF ARTICLES

(71) I, NORMAN JAMES TOWNSEND, a British subject, of "Woodbury", Amersham Road, Chalfont-St.-Peter, Gerrards Cross, Buckinghamshire, formerly of September Lodge, Jasons Hill, Chesham, Buckinghamshire, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to the packaging of articles which require to be protected against mechanical shocks during transport, examples of such articles being radio and television receivers.

In accordance with the invention there are provided cushioning means for use in packaging an article within a container, the said cushioning means comprising a closed hollow member containing air or other gaseous medium and having a re-entrant part bounded at least partly by plane intersecting walls capable of undergoing flexible deformation against the pressure of the gaseous medium.

The parts of the closed hollow member that are intended to make contact with the container may be formed with corrugations, grooves and/or dimples or other recesses to enhance the resilience with which the article is supported within the container and to allow for thermal expansion and contraction of the member.

The closed hollow member may conveniently be made by a blow-moulding process from a plastics material, for example low density polyethylene, and by way of example the thickness of the said intersecting walls may be of the order of 15 to 30 thousandths of an inch.

Closed hollow members according to the invention may be applied to suitable parts of the article prior to its being placed in the container, if desirable being held in position on the article by means of one or more cords, straps or the like. Alternatively, the said members may first be placed in the bottom of the container against the edges

and/or corners thereof and the article then placed in the container with its lower edges and/or corners fitting into the re-entrant parts in the same members, whereupon further such members are fitted to the upper edges and/or corners of the article and the lid or cover of the container is closed so as to make contact with the upper members.

In the accompanying drawings,

Fig. 1 is a perspective view of a portable radio receiver and two closed hollow members,

Fig. 2 is a view in sectional elevation of the radio receiver and the closed hollow members located in an outer container, and

Figs. 3 to 7 are perspective views of other forms of closed hollow member.

Referring to Figs. 1 and 2, the cushioning means consist of two closed hollow members the walls of which are air-tight and each of which is in the form of a rectangular block 1 with a rectangular recess 2 in one side, the size of the recesses 2 being such that the members 1 fit snugly over the ends of the radio receiver 3, and the size of the members 1 being such that the assembly of radio receiver and members 1 fits snugly into a carton 4 with the back, sides and bottom of each member 1 in contact with internal surfaces of the carton, and with the lid 5 when closed in contact with the tops of the members 1.

The closed hollow member shown in Fig. 3 has a substantially cylindrical wall 6 and flat end walls 7. The wall 6 is resilient, and is formed with a re-entrant part constituting a recess which is bounded by plane walls 8 and 9 perpendicular to one another and intersecting at the axis of the cylindrical wall 6, and by plane walls, one of which is visible at 10, normal to the axis of the cylindrical wall 6 and spaced apart so as to be at equal distances from the centre of the said axis. When an article is to be packaged, using closed hollow members of this form, the members are manufactured or selected from stock in accordance with the dimensions of the article such that an edge of the article,

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comprising for example parts of its upper surface, one end surface and the two adjacent side surfaces, fits snugly into the recess in each closed hollow member, the said members being held on the article by friction or by a cord, strap or the like. In the case of an article which is of substantially rectangular block form, four such closed hollow members may be applied to the respective four end edges of the article, which is then placed in a container with the two lower closed hollow members fitting into the respective lower corners of the container, whereupon the lid or cover of the container is applied so that the two upper closed hollow members fit into the upper corners of the closed container. If desired the part of the cylindrical wall 6 of each closed hollow member that faces away from the article to which the member is applied may be formed with corrugations, grooves and/or dimples or other recesses as aforesaid.

The closed hollow members need not be cylindrical or substantially cylindrical, and may indeed be of any suitable shape such that they can easily be handled and placed in position either on the article to be packaged or within a container in which the article is to be packaged.

The closed hollow member shown in Fig. 4 has two hollow portions 11 and 12 at right angles to one another, each portion having a re-entrant part 13 such as to form a recess adapted to fit over an edge and the adjoining corners of an article. The member is adapted to fit into a corner of a container indicated by the broken lines 14.

The closed hollow member shown in Fig. 5, which is to be located between a corner of an article and an internal corner of a container, is of triangular pyramidal form comprising three portions 15, 16 and 17 the respective outer walls of which are mutually at right angles so as to fit into the corner of the container, indicated by the broken lines 18 and the respective inner walls of which are also mutually at right angles so as to provide a pyramidal recess 19 for accommodating a corner of the article. When such members are to be used for packaging an article they will be manufactured or selected from stock in accordance with the dimensions of the article and the outer container such that when the article is located in the container the corners of the article fit into the recesses in the members, viz, against the inner walls thereof, and each member fits into a corner of the container 18 so that the article is resiliently supported within the container. The outer walls of the portions 15, 16 and 17 may be formed with recesses as aforesaid.

The closed hollow member shown in Fig. 6 has three portions 20, 21 and 22 with outer walls mutually at right angles and with inner

walls also mutually at right angles. The member is adapted to fit into a corner of an outer container indicated by the broken lines 23. The outer wall of the portion 21 is formed with grooves 24. The outer walls of the portions 20 and 22 may also be formed with grooves, or they may be formed with recesses of a form other than grooves.

The closed hollow member shown in Fig. 7 has two portions 25 and 26 with outer walls at right angles to one another and with inner walls at right angles to one another, and is intended to be applied to an edge of an article to be packaged, indicated by the broken lines 27. Such members may if desired be used in conjunction with members as shown in Fig. 5 or Fig. 6. The outer wall of the portion 26 is formed with grooves 28, and the outer wall of the portion 25 is formed with dimples 29. If preferred, both of these walls may be grooved or dimpled, or formed with recesses other than grooves and/or dimples.

The closed hollow members may have one or more grooves to accommodate a cord, strap or the like for holding the members in place on the article whilst it is being inserted into its container. In this and other respects the invention is not limited to the particular forms described and illustrated. For example, in the case of the member shown in Fig. 3 when used for packaging articles which are of a shape other than rectangular block shape, the shape of the re-entrant part may be different from that described. For example, the intersecting plane walls 8 and 9 may be at an angle to one another different from 90°, and/or the spaced end walls such as 10 may be inclined towards one another instead of being parallel.

It will be appreciated that whatever form the closed hollow members take, the air or other gas contained in them, in conjunction with the ability of the intersecting walls to undergo flexible deformation, affords a high degree of protection against mechanical shock to articles fitted into containers through the intermediary of such members.

The closed hollow members may be so made that all the walls thereof are capable of undergoing flexible deformation. Alternatively, only those parts that are intended to make contact with the article may be arranged to be capable of such deformation, as by making different parts of the members of different thicknesses.

#### WHAT I CLAIM IS:—

1. Cushioning means for use in packaging an article within a container, said means comprising a closed hollow member containing air or other gaseous medium and having a re-entrant part bounded at least partly by plane intersecting walls capable of undergoing flexible deformation against the pressure of the gaseous medium.

2. Cushioning means according to claim 1 wherein said member has three mutually perpendicular outer walls and three mutually perpendicular inner walls parallel respectively to the outer walls and bounding said re-entrant part. 5
3. Cushioning means according to claim 2 wherein the said outer walls are triangular whereby to provide a pyramidal re-entrant part. 10
4. Cushioning means according to claim 1 wherein said member is in the form of a rectangular block with a rectangular recess in a side thereof forming said re-entrant part. 15
5. Cushioning means according to claim 1 wherein said member has a substantially cylindrical wall and the re-entrant part is a recess in said wall bounded in part by two substantially plane walls intersecting at the axis of the cylindrical wall. 20
6. Cushioning means according to any of the preceding claims wherein at least some of the part of the member intended to make contact with the container is formed with corrugations, grooves and/or dimples or other recesses or projections. 25
7. Cushioning means according to any of the preceding claims wherein said member is made from low density polyethylene.
8. Cushioning means substantially as hereinbefore described with reference to Figs. 1 and 2 or any of Figs. 3 to 7 of the accompanying drawings. 30

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